



Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Printing date 03/31/2015

Reviewed on 03/26/2015

* 1 Identification

- **Product identifier**
- **Trade name: Phosphine Adsorbent Mixture**
- **Relevant identified uses of the substance or mixture and uses advised against**
- **Product description** Adsorbing Agent for Phosphine Mixtures
- **Application of the substance / the mixture**
Phosphine Adsorbent Mixture converts phosphine to water and phosphoric acid.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
DEGESCH America, Inc.
153 Triangle Dr.
P.O. Box 116
Weyers Cave, VA 24486 USA
Telephone: (540) 234-9281 / 800-330-2525
Telefax: (540) 234-8225
www.degeschamerica.com
degesch@degeschamerica.com
- **Emergency telephone number:**
For human or animal emergencies: 1-800-308-4856 (Rocky Mountain Poison and Drug Center)
For all other chemical emergencies: 1-800-424-9300 (Chemtrec)
Emergency and Information - DEGESCH America, Inc.: (540) 234-9281 / 800-330-2525

* 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS09 Environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

- **Label elements**
- **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS07 GHS09

- **Signal word** Warning
- **Hazard-determining components of labeling:**
Manganese Dioxide
Copper(I) Oxide
- **Hazard statements**
Harmful if swallowed or if inhaled.

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Toxic to aquatic life with long lasting effects.

Precautionary statements

Avoid breathing dust/fume/gas/mist/vapors/spray

Avoid release to the environment.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

If swallowed: Call a poison center/doctor if you feel unwell.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Call a poison center/doctor if you feel unwell.

Collect spillage.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

Unknown acute toxicity:

86.9 percent of the mixture consists of ingredient(s) of unknown toxicity.

Classification system:**NFPA ratings (scale 0 - 4)**

Health = 3

Fire = 0

Reactivity = 0

HMIS-ratings (scale 0 - 4)

Health = 3

Fire = 0

Reactivity = 0

Other hazards None known*** 3 Composition/information on ingredients****Chemical characterization: Mixtures****Description:** Mixture of substances listed below with nonhazardous additions.**Dangerous Components:**

CAS: 1313-13-9 RTECS: OP 0350000	Manganese Dioxide ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	86.9%
CAS: 1317-39-1	Copper(I) Oxide ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H302	12.5%
CAS: 7440-50-8 RTECS: GL 5325000	Copper ⚠ STOT SE 3, H335	≤ 2.5%
CAS: 1317-38-0	Cupric Oxide ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H302	≤ 2.5%

*** 4 First-aid measures****Description of first aid measures****General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

After inhalation:

Supply fresh air. If required, provide artificial respiration. Consult doctor if symptoms persist.

In case of unconsciousness, place patient securely on side position for transportation.

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- **After skin contact:**

Take off contaminated clothing immediately. Rinse skin immediately with plenty of water for 15-20 minutes. Seek medical attention if skin irritation develops.

- **After eye contact:**

Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Get immediate medical attention.

- **After swallowing:**

Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless told to by a poison control center or doctor.

- **Information for doctor:**

- **Most important symptoms and effects, both acute and delayed** No further relevant information available.

- **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

* 5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:** Use dry chemicals, carbon dioxide or water to extinguish fires.

- **Special hazards arising from the substance or mixture**

If incinerated, product will release the following toxic materials: Oxides of Manganese and Copper.

- **Advice for firefighters**

- **Protective equipment:**

Wear SCBA if there is danger of exposure.

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

* 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation

Wear dust mask

Avoid formation of dust.

- **Environmental precautions:**

Inform respective authorities in case of seepage into water course or sewage system.

Do not allow to enter sewers/ surface or ground water.

- **Methods and material for containment and cleaning up:**

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

Dispose of the collected material according to regulations.

- **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

* 7 Handling and storage

- **Handling:**

- **Precautions for safe handling**

Store in cool, dry place in tightly closed receptacles.

Ensure good ventilation/exhaustion at the workplace.

- **Information about protection against explosions and fires:** No special measures required.

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- **Conditions for safe storage, including any incompatibilities**

Store away strong acids, strong oxidizing agents, strong reducing agents, organic material, combustible materials, sulfur, chlorine trifluoride, hydrogen peroxide, peroxymonosulfuric acid, potassium azide, sodium peroxide, concentrated peroxyformic acid and reactive metal powders such as aluminum.

- **Storage:**

- **Requirements to be met by storerooms and receptacles:** No special requirements.

- **Information about storage in one common storage facility:** Not required.

- **Further information about storage conditions:** Keep container tightly sealed.

- **Specific end use(s)** No further relevant information available.

* 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.

- **Control parameters**

All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94). Use local exhaust at filling zones and where leakage and dust formation is probable. Use mechanical (general) ventilation for storage areas. Use appropriate ventilation as required to keep Exposure Limits in Air below TLV & PEL limits.

- **Components with occupational exposure limits:**

1313-13-9 Manganese Dioxide

PEL	Ceiling limit value: 5 mg/m ³ as Mn
REL	Short-term value: 3 mg/m ³ Long-term value: 1 mg/m ³ as Mn
TLV	Long-term value: 0.02* 0.1* mg/m ³ as Mn; *respirable **inhalable fraction

7440-50-8 Copper

PEL	Long-term value: 1* 0.1** mg/m ³ as Cu *dusts and mists **fume
REL	Long-term value: 1* 0.1** mg/m ³ as Cu *dusts and mists **fume
TLV	Long-term value: 1* 0.2** mg/m ³ *dusts and mists; **fume; as Cu

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

- **Breathing equipment:**



NIOSH/OSHA or EN approved respiratory protection is recommended for use in airborne concentrations exceeding exposure limits.

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Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Select glove material based on penetration times, rates of diffusion and degradation.

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.

· Eye protection:

Tightly sealed goggles

*** 9 Physical and chemical properties****· Information on basic physical and chemical properties****· General Information****· Appearance:****Form:** Powder**Color:** Black**· Odor:** Recognizable**· Odor threshold:** Not determined.**· pH-value:** Not applicable.**· Change in condition****Melting point/Melting range:** Not determined.**Boiling point/Boiling range:** Not determined.**· Flash point:** Not determined**· Flammability (solid, gaseous):** Not determined.**· Ignition temperature:****Decomposition temperature:** 500 °C (932 °F) (calculated)**· Auto igniting:** Product is not self-igniting.**· Danger of explosion:** Product does not present an explosion hazard.**· Explosion limits:****Lower:** Not determined.**Upper:** Not determined.**· Vapor pressure:** Not applicable.

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- **Density @ 20 °C (68 °F):** 5.0 g/cm³ (41.725 lbs/gal)
- **Relative density** Not determined.
- **Vapor density** Not applicable.
- **Evaporation rate** Not applicable.
- **Solubility in / Miscibility with Water:** Insoluble, reacts
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
 - Dynamic:** Not applicable.
 - Kinematic:** Not applicable.
- **Solvent content:**
 - Organic solvents:** 0.0 %
 - Solids content:** 100.0 %
- **Other information** No further relevant information available.

*** 10 Stability and reactivity**

- **Reactivity** No further relevant information available.
- **Chemical stability** Product stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** Avoid prolonged exposure to air.
- **Incompatible materials:**
Strong acids, strong oxidizing agents, strong reducing agents, organic material, combustible materials, sulfur, chlorine trifluoride, hydrogen peroxide, peroxymonosulfuric acid, potassium azide, sodium peroxide, concentrated peroxyformic acid and reactive metal powders such as aluminum.
- **Hazardous decomposition products:** Oxides of Manganese and Copper.

*** 11 Toxicological information**

- **Information on toxicological effects**
- **Acute toxicity:**

LD/LC50 values that are relevant for classification:		
1317-39-1 Copper(I) Oxide		
Oral	LD50	470 mg/kg (rat)

- **Primary irritant effect:**

- **on the skin:** May be irritating.

- **on the eye:** Direct contact may cause eye irritation.

- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

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- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)**
None of the ingredients are listed.

Group 1 - Carcinogenic to humans Group 2A - Probably carcinogenic to humans Group 2B - Possibly carcinogenic to humans Group 3 - Not classifiable as to its carcinogenicity to humans Group 4 - Probably not carcinogenic to humans

- **NTP (National Toxicology Program)**

None of the ingredients are listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients are listed.

* **12 Ecological information**

- **Toxicity**
- **Aquatic toxicity:**
Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.

1317-38-0 Cupric Oxide

EC50	25.4 mg/l (daphnia)
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7440-50-8 Copper

EC50	0.04-0.05 mg/l (Water flea)
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- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**
Do not allow undiluted product or product that has not been neutralized to reach ground water, water course or sewage system.
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

* **13 Disposal considerations**

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**
Disposal must be made according to official regulations.
Dispose of as unused product.

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· UN-Number	Non-Regulated Material
· DOT	UN3077
· ADR, IMDG, IATA	
· UN proper shipping name	
· DOT	Non-Regulated Material
· ADR	UN3077 Environmentally hazardous substances, solid, n.o.s. (Copper(I) Oxide)
· IMDG	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper(I) Oxide, Cupric Oxide), MARINE POLLUTANT
· IATA	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper(I) Oxide)
· Transport hazard class(es)	
· DOT	
· Class	Non-Regulated Material
<hr/>	
· ADR	
	
· Class	9 (M7) Miscellaneous dangerous substances and articles
· Label	9
<hr/>	
· IMDG, IATA	
	
· Class	9 Miscellaneous dangerous substances and articles
· Label	9
· Packing group	
· DOT	Non-Regulated Material
· ADR, IMDG, IATA	III
· Environmental hazards:	Product contains environmentally hazardous substances: Copper(I) Oxide
· Special marking (ADR):	Symbol (fish and tree)
· Special marking (IATA):	Symbol (fish and tree)
· Special precautions for user	Warning: Miscellaneous dangerous substances and articles
· Danger code (Kemler):	90
· EMS Number:	F-A,S-F
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
<hr/>	
· ADR	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g

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- **IMDG**
- **Limited quantities (LQ)** 5 kg
- **Excepted quantities (EQ)** Code: E1
Maximum net quantity per inner packaging: 30 g
Maximum net quantity per outer packaging: 1000 g
- **UN "Model Regulation":** UN3077, Environmentally hazardous substances, solid, n.o.s. (Copper(I) Oxide), 9, III

***15 Regulatory information**

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

All ingredients are listed.

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **Carcinogenic categories**· **EPA (Environmental Protection Agency)**

1313-13-9 Manganese Dioxide

D

7440-50-8 Copper

D

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients are listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

GHS07 GHS09

- **Signal word** Warning

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Trade name: Phosphine Adsorbent Mixture**· Hazard-determining components of labeling:**Manganese Dioxide
Copper(I) Oxide**· Hazard statements**Harmful if swallowed or if inhaled.
Toxic to aquatic life with long lasting effects.**· Precautionary statements**Avoid breathing dust/fume/gas/mist/vapors/spray
Avoid release to the environment.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
If swallowed: Call a poison center/doctor if you feel unwell.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a poison center/doctor if you feel unwell.
Collect spillage.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.**· National regulations:**

The product is subject to be labeled according with the prevailing version of the regulations on hazardous substances.

· State Right to Know

CAS: 1313-13-9 RTECS: OP 0350000	Manganese Dioxide ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	86.9%
CAS: 1317-39-1	Copper(I) Oxide ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H302	12.5%
CAS: 7440-50-8 RTECS: GL 5325000	Copper ⚠ STOT SE 3, H335	≤ 2.5%
CAS: 1317-38-0	Cupric Oxide ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H302	≤ 2.5%

All ingredients are listed.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.**16 Other information**

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

· Date of preparation / last revision 03/31/2015 / -**· Abbreviations and acronyms:**

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

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Acute Tox. 4: Acute toxicity, Hazard Category 4

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

Aquatic Acute 1: Hazardous to the aquatic environment - AcuteHazard, Category 1

Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1

Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2

· *** Data compared to the previous version altered.**

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